

### Claims

1. A vehicle body structure characterized in that a crush zone for absorbing an impact force in a collision is provided on a front head side of a vehicle relative to a passenger compartment, and a straight portion extending along a vertical direction is formed in a front portion of a vertical beam as a constituent member constituting the crush zone.

2. The vehicle body structure of claim 1, characterized in that a length of the straight portion is set according to an amount of vertical displacement during travel of the vehicle.

3. The vehicle body structure of claim 1, characterized in that the vertical beam connects a roof frame and an underframe, and an inclined portion inclined forwardly is formed in an upper portion of the vertical beam, while the straight portion is formed in a lower portion of the vertical beam.

4. The vehicle body structure of claim 3, characterized in that a plurality of the vertical beams are provided in a width direction of the vehicle.

5. The vehicle body structure of claim 1,

characterized in that the straight portion is located at a most forward position.

6. The vehicle body structure of claim 1, characterized in that the vertical beam connects a roof frame and an underframe, a bumper is connected to the underframe, and the bumper has a central portion protruding forwardly of the vehicle and has buckling strength changing means provided in opposite side portions.

7. The vehicle body structure of claim 6, characterized in that the opposite side portions of the bumper are weakened relative to the central portion by the buckling strength changing means.

8. The vehicle body structure of claim 7, characterized in that the buckling strength changing means is holes formed in the bumper.

9. The vehicle body structure of claim 7, characterized in that a reinforcing member is provided in the central portion of the bumper.

10. The vehicle body structure of claim 1, characterized in that a cushioning member located behind the constituent member and adapted to buckle by the impact force, thereby relieving the impact force, is provided on

one side in a vertical direction of the straight portion, and an auxiliary member is provided for bending the constituent member away from the cushioning member when the impact force is inputted.

11. The vehicle body structure of claim 10, characterized in that the constituent member includes a bumper connected to a lower end portion of the vertical beam, and a beam member constructed between the bumper and a vehicle body, and a front portion of the beam member is bent toward the cushioning member to constitute the auxiliary member.

12. The vehicle body structure of claim 10, characterized in that the constituent member includes a bumper connected to a lower end portion of the vertical beam, a reinforcing member fixed behind the bumper, and a beam member constructed between the bumper and the reinforcing member, and a front portion of the beam member is curved toward the cushioning member to constitute the auxiliary member.

13. The vehicle body structure of claim 10, characterized in that the constituent member is a bumper connected to a lower end portion of the vertical beam, continued from the straight portion, and inclined rearward, and the bumper covers at least part of the cushioning member.

14. The vehicle body structure of claim 1, characterized in that a cushioning member located behind the constituent member and adapted to buckle by the impact force, thereby relieving the impact force, is provided on one side in a vertical direction of the straight portion, and a protrusion for secondary collision, which is exposed forward, is provided in a front end portion of the cushioning member.

15. The vehicle body structure of claim 1, characterized in that a plurality of cushioning members for relieving the impact force by being buckled by the impact force are arranged side by side on right and left sides of the vehicle behind the straight portion, and front end portions of the cushioning members are connected by a connecting member.

16. The vehicle body structure of claim 15, characterized in that the cushioning member includes a buckling portion extending forward from a base end portion attached to a vehicle body, and a crash portion attached to a front end portion of the buckling portion, reinforcing means is provided in a mounting area of the vehicle body and the buckling portion, and a reinforcing member is provided in a connecting area of the buckling portion and the crash portion.

17. The vehicle body structure of claim 1, characterized in that a cushioning member for relieving the impact force by being buckled by the impact force is provided behind the straight portion, and a vertical restraining member for inhibiting vertical displacement, relative to a member to be collided with, in the collision is provided in a front end portion of the cushioning member.

18. The vehicle body structure of claim 17, characterized in that the vertical restraining member is constituted by fixing a plurality of horizontal engagement plates at predetermined intervals in a hollow box attached to the front end portion of the cushioning member.

19. The vehicle body structure of claim 18, characterized in that the plurality of engagement plates are fixed to a rear surface of the hollow box, and predetermined gaps are formed between a front surface of the hollow box and the plurality of engagement plates.

20. The vehicle body structure of any one of claims 1 to 19, characterized in that the vehicle is constituted by mounting a plurality of running wheels to a box-shaped vehicle body having the crush zones provided ahead of and behind the passenger compartment, and the vehicle rotationally drives the running wheels while being supplied

with an electric power, whereby the vehicle can travel along  
dedicated tracks.